Jurnal Obsesi

Volume 9 Issue 1 (2025) Pages 83-100
Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini
ISSN: 2549-8959 (Online) 2356-1327 (Print)

Literacy Innovation in Toilets: Integration of Discovery Learning Model for Early Childhood Education in Sikka, NTT

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DOI: 10.31004/obsesi.v9i1.6727

Abstract

This research is motivated by the learning conditions at the Early Childhood Education (ECE) level caused by several factors, namely the weak creativity of teachers in managing the classroom, the lack of media and learning support tools, and the low interest in learning from students. By describing innovations in the form of image design on the concept of Literacy Toilets, this study aims to explore the concept of Literacy Toilets initiated and collaborate with Discovery Learning learning steps. The research method applied is a qualitative research method with a descriptive analysis approach based on various information collected from observation studies, documentation and interview results with parties directly involved in education at the school. The results of the study show that the steps of the Discovery Learning model can be applied and collaborated with the school literacy movement through the concept of Literacy Toilets. The application of the exploration method through the design of the Literacy Toilet can increase the Student Learning Activity (KBS) from 62.6% with the Medium category to 85.22% with the High category.

Keywords: *Discovery learning model, concept of toilet literacy, student learning activity*

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Received 29 December 2024, Accepted 2 February 2025, Published 2 February 2025

Introduction

Learning at the Early Childhood Education (ECE) level is oriented towards activities that are active and fun for students through games, singing, and environment-based exploration. The purpose of early childhood education is solely to support the development and stimulate the development of children from an early age(Tamblyn et al., 2023). Learning activities in ECE can be said to be of high quality if the treatment and services provided can accommodate the learning needs of children (Amarul, 2019). In this case, the role of an ECE tutor or teacher is very important to accompany and guide children during learning activities in an interesting and fun way(Vizcaíno-Verdú & Abidin, 2023).

The ideal ECE teacher or tutor is a friendly, close to children, and enthusiastic so that his performance in creating an active and fun learning atmosphere for children is needed to support learning success (Sum, 2019). An ECE teacher is required to have closeness to children, have a spirit of nurturing, creative and innovative in teaching(Asadzadeh et al., 2024), and appreciate every learning effort of the children he accompanies them(Kumar et al., 2024). Without the role of an ECE teacher who is patient(Simanjuntak, 2024), friendly and has a closeness to children, it certainly affects the process and achievement of expected learning outcomes (Yufrinalis & Uran, 2023).

The problem experienced by teachers and children of ECE Restorasi Patisomba is the low interest in learning children and they feel bored quickly in participating in learning activities. This is due to the conventional way of teaching teachers, teachers are less creative in using media and learning models, and teaching materials are not developed according to children's learning needs. Another condition is that there is still a lack of play facilities and learning facilities for children so that they have not triggered children's enthusiasm for learning to the maximum. This certainly affects children's initiative and creativity so that they do not achieve learning targets.

One of the teachers' efforts to increase the interest and motivation of ECE children in learning is to create beautiful, attractive and fun environmental conditions for children(St. Pierre et al., 2024). The condition of the room where children learn greatly affects their enthusiasm and activeness (Farida Payon et al., 2021). A study room designed with attractive images can relieve children's boredom, build children's imagination and be active in the learning process (Lubis, 2017). The design of an attractive room greatly affects everyone who enjoys it(D. P. Astuti, 2024). The principle of image media in a learning room is as a medium for conveying information and communication (Romadonah & Maharani, 2019). Communication through images is shown through symbols, symbols and signs, as well as giving information to the recipient about something (Freddy H. Istanto, 2000).

This study aims to integrate the Discovery Learning learning model through image design on the Literacy Toilet at ECE Restorasi Patisomba. ECE Literacy Toilet Patisomba Restoration is one of the formal educational institutions that prioritizes the concept of Freedom to Play through creative and fun classroom design. If the toilet is generally known as a place that prioritizes a person's privacy, the concept of the Literacy Toilet offers a learning platform that is not boring with the presence of painting ornaments, pictures, game rides, and interesting reading books (Aquinaldo, 2020). The children who study at ECE also feel comfortable and trained to maintain the cleanliness of the toilet complex which is designed with their favorite image characters. In addition, the presence of the Literacy Toilet as an idea of young people that presents a relaxed learning atmosphere so that ECE teachers or tutors can direct children to learn to find sources of knowledge through books, pictures and game tools provided in the ECE Patisomba Restoration environment.

This is part of the strategy of teachers and ECE school management, namely by designing images that are in accordance with the context of children's learning needs in the environment. The existence of the Literacy Toilet combined with the Discovery Learning model can help children find their own sources of knowledge through a learning environment that has been designed. The goal is for children to feel comfortable learning to explore learning materials on their own based on the image designs available in this ECE environment(Huliyah & Fauzia, 2024). In addition, with the Discovery Learning model and an engaging learning environment, ECE children are motivated to learn and do not feel bored by the guidance of their teachers(Aditya et al., 2024).

This research is a new research that focuses on the importance of improving children's literacy culture through the concept of Toilet Literacy. The gaps in this research include the lack of exploration of non-traditional spaces for literacy learning, the integration of the Discovery Learning model for early childhood, the relevance of local culture, and a focus on the long-term impact and psychological aspects of children (Hariyono et al., 2024). This

DOI: 10.31004/obsesi.v9i1.6727

research has the potential to make a significant contribution to early childhood education, especially in a unique local context such as Sikka, NTT, while introducing new creative and applicable approaches.

Some of the gaps between this research and other studies include the non-traditional learning room , a unique approach by using the toilet as a learning room. This space has not been explored much as a means of formal education, especially in the context of early childhood literacy. This research also expands the scope of Discovery Learning to early childhood literacy in a creative way, namely providing opportunities for children to find words or symbols independently through visuals or activities in the toilet (Wahyuseptiana, 2021). This research also has the potential to explore how the use of non-traditional spaces, such as toilets, can instill learning habits that have a long-term impact on literacy education. And, most importantly, this research has the potential to explore how the use of non-traditional spaces, such as toilets, can instill learning habits that have a long-term impact on literacy education. This research has the potential to explore simple analog and visual media, such as interactive posters or educational stickers (Shovmayanti, 2024), which are easier to apply in areas with limited access to technology.

Regarding the layout of classrooms that are attractive to ECE children, several studies also highlight the design and concept of classrooms that can spur children's enthusiasm for learning(Ritchie et al., 2023). An attractive learning space requires the sensitivity and creativity of the teacher to organize it so that children feel comfortable learning and exploring themselves(Visuri, 2024). In addition, creative touches supported by the use of the latest technology are able to stimulate children's motivation and thinking skills(Sintiani & Romadona, 2024). Teachers are not only fixated on the content, but also prepare adequate learning spaces that are supported by the learning needs of today's children assisted by technological sophistication (Mardhiati, 2023).

An engaging learning environment can support children's cognitive, psychomotor and affective development as they learn. An environment that offers a wide variety of materials and intellectually challenging activities helps children build problem-solving skills and critical thinking skills(Namaskara et al., 2023). Safety and comfort are key aspects of an effective learning environment. Research by Nurdiana (2023) found that attractive learning designs can help children's critical thinking and skills so that they are able to implement their ideas and willingness to learn in the school environment.

Likewise, graphic design in children's classrooms at the ECE level can offer a variety of intellectually challenging materials and activities, helping children build problem-solving skills and critical thinking skills. Safety and comfort are key aspects of an effective learning environment. This is in line with Astuti's (2024) research which shows that an attractive classroom design explains the importance, goals and principles that must be considered in classroom management, especially in early childhood education. At the same time, in cognitive development, the theories of experts and ways to develop children's cognitive development are explained. Another research by Muttaqin et al., (2024) explained that classroom design for early childhood development in the social-emotional realm at RA Aisyiah Jintap Ponorogo can provide children with social-emotional understanding, namely social-emotional in behaving, social-emotional learning of children, and social-emotional in self-control. In this case, the factor of an interesting learning environment can support the effective aspects of children in learning.

Other research highlights the role and creativity of teachers in providing image media as a means of supporting learning for children. Research by Prasetya et al., (2024) explains that teachers can creatively prepare interesting *games* by using picture media as a means of supporting learning. For example, the guessing game that the teacher has prepared can stimulate children's exploratory ability to provide answers according to the level of understanding they already have. Through a *game* application inserted on a *mobile device,* teachers can encourage children to learn various images and give guesses to the image icons

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available on the application. This *game* is an educational *game* to guess animal images which has functions including, the *game application* contains images of animals based on the type of breeding and habitat to get to know many types of animals, then there is a feature to guess the picture of the type of animal with a score according to the answer, as well as an audio feature in the game.

On the other hand, children's learning ability through image media is part of the application of the discovery learning model. The discovery learning model encourages children to explore their own knowledge on the learning objects they encounter(Samuelsson, 2024), as well as construct new knowledge from the findings in question. In this discovery learning model, children are invited to discover for themselves what they are learning and then construct student knowledge by understanding its meaning(Brezack et al., 2023). Meanwhile, teachers play the role of learning facilitators who emphasize the importance of understanding a concept through active involvement of children (Tanjung, 2024). The ability to explore in discovery learning also encourages children's literacy(Lestari et al., 2024), so that through the learning objects encountered, either in the form of pictures or other physical things, it becomes a new discovery and a source of knowledge for children (Suhayati & Watini, 2024).

In relation to the literacy movement integrated in the Discovery Learning model, teachers play an important role in encouraging students to have habits and patterns of behavior that seek and find knowledge through reading activities. Just as the Discovery Learning model leads students to explore knowledge based on observations, read and explore their learning environment (Ninsiana et al., 2024), and build critical thinking skills (Manurung & Pappachan, 2025), the literacy movement on the same path leads students to the quest for knowledge through reading and understanding certain topics. The Discovery Learning model and literacy activities support the same goal, which is to guide students to read and study, question, and answer the problems they encounter themselves (Hariyanto et al., 2023). Literacy activities are an absolute necessity for students in the 5.0 era so that efforts to seek knowledge and information can be explored with the help of digital devices (Akihary et al., 2023) and also get opportunities to realize it through their daily social activities (Nuryadi & Widiatmaka, 2023). Regular literacy habits and high learning motivation can encourage proficiency (Wigati et al., 2022), high skills and creativity of students as a further impact of the ongoing search for knowledge.

Methodology

The type of research applied is qualitative research with a descriptive analysis approach. According to Sugiyono (2018), qualitative research methods are also often referred to as naturalistic research because the situation studied is natural. The characteristics of qualitative research include being descriptive, prioritizing the process that is undertaken, and being carried out directly on the object or subject being studied (Sidiq et al., 2019). Through descriptive analysis, various phenomena and events discovered during the study can be described in structured and easy-to-understand explanations. Each step in qualitative research is carried out carefully so that each finding can be a source of explanation in subsequent data analysis.

This research was carried out qualitatively with a descriptive approach by referring to data collection procedures in the form of documentation studies, data from observation of student learning activity, and interviews with several parties directly involved in learning activities in schools that support the concept of literacy toilets. By monitoring student learning activities, several data can be obtained that supports the integration of the concept of literacy toilets and student learning development. Documentation studies are needed to see the development and changes in student learning activity starting from before the implementation of the literacy toilet concept and after the implementation of the literacy toilet concept in the

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school. The interview was conducted to get concepts, ideas and applications as well as evaluation of the implementation of the literacy toilet concept.

This study requires some primary and secondary data as one of the materials to compile information (Makbul, 2021). Primary data is data obtained directly from the field, which can be in the form of observations and interviews. To obtain primary data, researchers used research instruments in the form of interview guidelines, activity documentation, and learning activity observation sheets (Miles, 2009). The researcher conducted interviews with ECE management, accompanying teachers, and parents of students.

Table 1. Interview Instruments

Interview aspects	Indicators	Instrument items	Questions
Implementation of literacy toilet	Concept of literacy toilet	1	Explain the concept of the Literacy Toilet and the basis for its implementation in ECE!
	Parties involved	2	Who is involved in the toilet literacy movement?
	The application process in schools	3,4	How is the concept of Literacy Toilet applied in schools? Can the concept of Literacy Toilet stimulate children's enthusiasm for learning?
	Influence on students	5	Are there any impacts and obstacles in the implementation of the Literacy Toilet concept?
Integration of Discovery Learning model	The collaboration process of the Discovery Learning model with the design of the Literacy Toilet	6,7	What are the challenges faced by ECE managers in implementing this concept? How does this concept relate and collaborate with Discovery Learning?
	Results of the application of the Discovery Learning model in collaboration with the design of the Literacy Toilet	8	What are the learning outcomes of students after the application of this concept?
	Opportunities and challenges	9,10	What are the opportunities to apply this concept? What are the challenges faced in the application of this concept in the future?

While secondary data is data obtained indirectly, it can be in the form of research results of other people or written documents stored as archives. Secondary data is also obtained online from other people's writings or research results published in journals according to the research theme that occurred. Data analysis was carried out using the Miles and Huberman analysis approach (Miles, 2009), namely collecting data, presenting data, reducing data, and drawing conclusions. The data analysis model can be described in the following figure.

DOI: 10.31004/obsesi.v9i1.6727
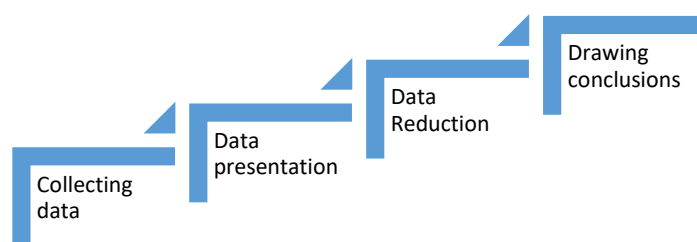
Figure 1. Stages of data analysis(Asipi et al., 2022)

According to Miles and Huberman(Huberman & Miles, 2002), the steps of data analysis consist of three main stages: data reduction, data presentation, and drawing conclusions or verification. First, data reduction involves the process of simplifying, selecting, and transforming the raw data that has been collected into a more organized and meaningful form. This step helps researchers to focus their attention on data that is relevant to the research objectives. Second, data presentation is carried out by compiling data in the form of tables, graphs, diagrams, or descriptive narratives to facilitate understanding and identification of patterns or relationships between variables. This stage allows researchers to systematically evaluate the findings. Finally, inference drawing or verification is a process in which researchers look for meaning from the patterns found and test the consistency of the data to ensure the validity of the findings. This overall step is iterative, allowing researchers to continue to develop a deep understanding of the data being analyzed (Monaro et al., 2022).

Result and Discussion

Results

The Early Childhood Education (ECE) Restorasi Patisomba was initially established in 2018 as a form of solidarity with the ECE manager, Remigius Nong. This school provides education for children of the poor living in the Patisomba area. Most of the students accepted into this school have parental work backgrounds as farmers, fishermen, drivers and motorcycle taxis. Initially, this school was established on the basis of the founder's concern and concern about the urgency of tutoring and mini library services for children of kindergarten, elementary, junior high and high school ages. In this school journey, it focuses on the education and mentoring of ECE children, by prioritizing a focus on recreative, independent and exploratory learning.

Based on data collected by the research team from August 1 to August 10, there are several interesting facts about the implementation of education and learning at the school. *First,* since 2021, this school has been actively promoting character education from the habit of saving from an early age. By saving Rp. 1,000.- every day, each child is trained to save pocket money and set aside for shopping for school uniforms and other writing supplies (Merdeka.com, 2020). In line with the explanation by the ECE manager, the concept of saving is habituated to train children to live frugally and attach importance to priority needs for their education (Nong, 2024).

Second, this school recruits volunteer teachers who are not paid. Teacher volunteers who help teach at this school are only assisted by the manager by providing vegetable seeds to be planted and sold to meet daily needs. With the concept of Restoration, which is the label of this school, the manager makes volunteer teachers, parents, and children to prioritize change for the better through formal education (Merdeka.com, 2020)

Third, the concept of Literacy Toilets. Since 2020, ECE Restorasi has initiated a new concept in learning in schools, namely the Literacy Toilet Concept, as a learning concept for children to manage the environment as a learning resource. Toilets, which are considered by most people to be dirty, shabby, and filthy places, are designed in such a way that they become one of the places to gain knowledge (Aquinaldo, 2020). According to Nong (2024), talking

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about the literacy movement is not only limited to the physical building of the library and the books available in it, but also to various opportunities that can be provided as a source of reading and knowledge for students. According to the manager of ECE Restorasi, reading books can be placed anywhere in the school environment, even in toilets reading materials can be provided for children. In addition, a creative and ergonomic toilet design can create a fun learning atmosphere, attract interest, and build an exploratory spirit of children who use the toilet.

> "*…So in the toilet we write that most of the letters, numbers, and make a variety of models, can be made in the form of animals for example and he shows this letter A, letter B and so on. Then we slip with words for the level of parents, because here there are many farmers, we conceptualize with the word agriculture.*" *(Nong, 2024).*

The concept of Literacy Toilet is not only a means of learning for students and filling time to read in the school environment, but more than that, it is a concept that accustomes students to appreciate toilets as a fun place, an inspiring place, and keeps the toilet environment clean.

> "*Around the toilet we will also make a barge place. So people come because they see the toilet. That's good, even if he doesn't defecate he will go there and the people there will also be diligent cleaning because the place is enjoyed by many. So that the toilet is no longer considered dirty, slums and so on.*" *(Nong, 2024)*

In learning at school, both in the classroom and outside the classroom, the accompanying teacher designs a learning model that adopts the learning needs of students for the application of the Literacy Toilet concept initiated earlier. The most suitable learning model to be applied and juxtaposed with the concept of Literacy Toilet is the Discovery Learning Model. The Discovery Learning Model (DL Model) is a learning model that places the role of students and develops students' ways of thinking to actively learn to discover and investigate their own learning concepts, so that the results obtained will last a long time in memory (Marisya & Sukma, 2020). Through the DL model, students are encouraged and given the flexibility to search, explore and find their own sources of knowledge. In this case, the teacher only acts as a facilitator or companion who designs the topic, creates a grid, and directs students to learn from the results of their own inventions.

Figure 2. Graphic design on buildings and classrooms in Early Childhood Education (ECE) of Patisomba

The concept of Literacy Toilet when combined with the DL Model emphasizes the active role of students to find their own sources of knowledge. Students are trained to manage learning independence (Reigeluth, 2016), classify their knowledge (Kristin & Rahayu, 2016), and elaborate their findings as the latest learning resources. The design of the Literacy Toilet

DOI: 10.31004/obsesi.v9i1.6727

room with nuances of a combination of letters and pictures actually presents a comfortable atmosphere when used by students. In addition, the information and insights implied in the design of images and writing (letters) actually arouse positive imagination for improving aspects of students' skills in choosing themes, constructing mindsets, and expressing the results of their findings in a short description or brief exposure to teachers and other colleagues.

Figure 3. Learning atmosphere in the classroom

According to Nong (2024), the implementation of learning at ECE Restorasi Patisomba prioritizes student learning independence. With incomplete learning support facilities, the ECE management continues to try to organize learning activities that prioritize individual freedom, student proficiency, and teacher creativity in managing learning. Not only that, various opportunities to present students' learning independence and literacy skills, carried out by establishing a mini library or reading corner, developing innovative and ergonomic room designs, and character education through saving and loving the environment.

Figure 4. Image design on the school toilet room at ECE Patisomba Restoration

In classroom learning using the DL model, teachers set the following implementation steps:

1. Identify Problem or question

   Teachers provide questions or problems relevant to the learning topic to stimulate students' interest in learning. For example, teachers ask questions about the theme of I Love the Earth, such as types of waste and their impact on the environment.

2. Information Collection

   Teachers guide students to collect various information about the learning topics to be explored. This initial information can be the basis for determining the formulation of a hypothesis in the next step.

3. Hypothesis formulation

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After receiving stimulation, students are invited to identify problems or questions that arise from the situation. At this stage, the teacher helps students formulate a question or initial hypothesis that they want to research or find the answer. Teachers can also provide guidance, but still let students direct their own thought processes.

4. Exploration and experimentation

Students begin to gather relevant data or information through various sources, such as observations, experiments, reading references, or discussing. In this stage, students actively explore and collect information independently or in groups. The teacher's role is to provide the necessary resources or tools and help direct students if needed.

5. Data analysis

After collecting data, students analyze or process information to find patterns or relationships. They compare, categorize, or draw preliminary conclusions from the data obtained. At this stage, the teacher acts as a facilitator to guide students in organizing information and directing them to stay focused on the learning objectives.

6. Drawing conclusions

At this stage, students examine or test the hypothesis or solution they find. They compare the results of their findings with existing theories or concepts to see if they fit. Students can put forward arguments or conduct follow-up experiments if needed. Teachers play a role in providing feedback to help students improve their understanding.

7. Communicating results

The final stage is to make a conclusion or generalization of the findings that have been made. Students formulate concepts or principles that they have discovered from this learning process. This conclusion helps students understand the relationship between the concepts found and the broader learning topics. The teacher then reinforces or clarifies the concepts that the students have discovered and aligns them with the desired learning objectives.

Teachers in *Discovery Learning* function as facilitators and guides who support the students' exploration process. Teachers need to ensure that students stay on track and help them when they are struggling. Teachers also direct reflection at the end of the process to ensure students truly understand the knowledge or concepts they have discovered.

Based on the results of observation of the level of Student Learning Activity (KBS), it was found that there was an increase in children's motivation and interest in learning during the application of the Discovery Learning model in the Literacy Toilet. If previously, the KBS results showed an average of 62.6%, then after the collaboration between the Discovery Learning model and the Literacy Toilet concept, the KBS results increased to 85.22%. The implications of the steps in the application of this learning model lie in the children's activeness and initiative to identify ideas, actively collect information, propose initial hypotheses, conduct field explorations and experiments, analyze, describe the findings and report the findings in classroom learning. The results of KBS observations can be described in the table 2.

Table 2. Observation Results of Student Learning Activity

No	Indikator	Before treatment	After treatment
1	Students dare to express opinions or ideas	35.1%	75.3%
2	Students ask questions on the learning forum	40.2%	80.4%

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3	Students dig up information that can be used to find solutions to problems	80.3%	87.4%
4	Students analyze and describe findings	75%	88%
5	Students report and present the findings in front of the class	82.4%	95%
	Average	62.6%	85.22%
	Category	**Medium**	**High**

From the table above, it is described about the increase in student learning activity during the application of the Discovery Learning model in relation to activities in the Literacy Toilet as a source of student learning. Several indicators show an increase in student motivation, interest and activity, including students who dare to express their opinions (75.3%); students asked questions on learning forums (80.4%); students explore information that can be used in finding solutions to problems (87.4%), students analyze and describe findings (88%); and students reported and presented the findings in front of the class (95%). The average increase in student learning activity was 85.22% with the High category.

Discussion

Research by Kusumawati (2023) explains that teacher performance in teaching in kindergarten is greatly influenced by school management and governance. The role of the principal as a kindergarten manager has a positive effect on the formation of a teacher's teaching character so that it has an impact on the quality of teaching and the quality of learning in the classroom. Creative and innovative teachers are needed to organize learning at the kindergarten level. This is due to the fundamental reason that children need to be helped to learn while playing and vice versa to play while learning (Maryatun et al., 2024). Of course, the role of teachers here is indispensable to create an ideal, creative, interesting and fun learning atmosphere for children.

Teachers in early childhood learning environments have teaching performance that is certainly different from teachers in elementary and secondary learning environments(Wahjusaputri & Fitrianingsih, 2024). In addition to the character of a good, creative and innovative teacher(Sutama & Astuti, 2024), early childhood teachers need to teach contextually by connecting learning topics with children's daily lives (Istiq et al., 2024). The character of early childhood who learns in the surrounding environment certainly requires teachers to design teaching materials (Primaniarta, 2024) and teaching methods that adopt and adapt the context of the surrounding life as a learning resource (Yufrinalis, et.al., 2021).

Creative and innovative teachers certainly have an effect on children's learning styles and their learning outcomes(Thaariq & Surahman, 2021). Teachers can train children to think critically and creatively through the learning model applied. The role of technology also helps teachers to be creative and innovative, which can be described in learning with children at school. Today's educational transformation requires teachers to adopt technological advances so that innovation (Nurunisa & Shodiq, 2024) and creativity can be combined with technology-based learning (Valencia & Shodiq, 2024).

The concept of Literacy Toilet initiated at ECE Patisomba Restoration is the fruit of creative and innovative ideas from the management and teachers. This is certainly based on the view and experience that mobilizing the spirit of literacy must start from the basics, since children learn at an early age in school. Combining the learning environment with the literacy movement is a step forward in the world of early childhood education, because through creative ways like this, it actually trains children's thinking, critical mindset, and exploratory ability to everything that can be learned (Hidayah et al., 2024). In addition, applying any learning model, not only the Discovery Learning model, can support the literacy movement for children packaged in a literacy concept, namely the Literacy Toilet.

In line with the application of the Discovery Learning (DL Model) model, early childhood teachers can guide children by taking on the role of companions, facilitators, and

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guides who support their exploration process. Activities that start from identifying problems, gathering information, making observations, to drawing conclusions and communicating results, can encourage children to learn from the surrounding environment, especially the school environment that already provides interesting learning concepts. Discovery Learning activities in the researcher's findings actually support the literacy movement initiated through the concept of Literacy Toilets. This is in line with Setyowati's (2024) research which illustrates that the application of discovery learning can improve the learning outcomes of students of Dharma Wanita Kindergarten in Kedungrejo village, Bojonegoro. Students can learn freely, creatively, and passionately in finding the topics discussed so that they can improve their learning outcomes (Yufrinalis & Hero, 2023).

The Discovery Learning model applied in the classroom can encourage students to actively search and find their own learning problems presented by the teacher. As a result, many students are able to think critically to solve the given problems, both mathematical, descriptive, and technical problems (Dea & RAHMAWATI, 2021). Likewise, combining discovery activities with experimental methods can activate children's participation in the learning process, strengthening their observation, analysis, and creativity (Bylla et al., 2024). The creativity and good learning spirit of children during learning with the Discovery Learning model can improve their cognitive aspects of science so that they can schematically present the findings in class (Heni, 2023).

On the other hand, the design of the toilet, which is added to its function as a learning room and exploration room, actually leads children to learn more things outside the classroom (Waluyo et al., 2023). The teacher provides guidance with certain exploration tasks that can be obtained by anal children in their observation and visits to the literacy toilet. The design of the images and letters displayed can provide new information and sources of knowledge (Hadianti et al., 2024), which are managed and collected by children, and then the findings are presented in class. Schools and managers can think of many concepts that help the children's learning process (Saputra & Hidayati, 2024), while preparing teachers with 21st century knowledge and skills for the development of interesting and fun learning for children.

The concept of Toilet Literacy or the use of toilet rooms as a medium to increase literacy, is a creative idea that is getting more and more attention in the world of education, but research on this concept is still limited. The idea of a literacy toilet is to utilize the toilet room, a place that is frequented every day to display information that can stimulate learning, such as words of wisdom, inspirational quotes, or light knowledge (e.g. scientific facts, cultural information, or words in a foreign language). In some schools or universities, this concept has begun to be implemented as part of an initiative to improve literacy skills through alternative media. This is in line with the findings of research by Monika et al., (2024), which highlight the importance of applying science literacy in early childhood as part of a learning development program. The three main aspects that need to be considered include attitudes(Ghufron & Wuryandani, 2025), skills, and self-competence in children's cognitive abilities(Saleem et al., 2024), as well as participation in learning strategies prepared by teachers.

The results of the study on Literacy Innovation in Toilets with the integration of the Discovery Learning model make an important contribution to early childhood education theory, especially in the application of exploratory and contextual-based learning. This study strengthens the foundation of the constructivism theory of Jean Piaget, who emphasized that learning in early childhood occurs through their active interaction with the environment (Handayani et al., 2024). By utilizing non-formal spaces such as toilets as a learning medium, this study shows that children can acquire early literacy skills naturally through self-discovery activities. This allows them to learn in a fun and creative way without relying on traditional classrooms (Hasanah et al., 2023). This approach not only supports experiential learning but also provides innovative alternatives to utilize the everyday environment as an educational space.

DOI: 10.31004/obsesi.v9i1.6727

This research supports the principle of Zone of Proximal Development (ZPD) of Lev Vygotsky, which emphasizes that children can learn optimally when they get scaffolding, i.e. support from teachers or their surroundings (Volkmar, 2021; de Souza, 2023). In the context of latrine-based literacy learning, visual elements and discovery-based activities provide children with the opportunity to explore the material independently with minimal assistance. This approach not only encourages the development of early literacy but also builds confidence and independence in learning. In addition, this study emphasizes the importance of the physical environment as an integral component in early childhood education, as explained in Bronfenbrenner's theory of Ecological Systems. According to this theory, a child's development is influenced by the dynamic interaction between the micro environment (such as the toilet as a learning space) and the broader macro environment (Navarro & Tudge, 2023; Fulantelli et al., 2021). The study underscores that a well-designed environment can provide a rich and relevant learning experience for early childhood.

From the perspective of literacy, this study expands the traditional literacy approach by integrating local elements and the daily environment as a learning context. This approach is in line with Emergent Literacy's theory, which emphasizes that literacy develops gradually through children's experiences in understanding the symbols, images, and writings they encounter in their surroundings (Weadman et al., 2023; López-Escribano et al., 2021). By utilizing the toilet room as an innovative learning medium, this study shows that literacy can be taught through experiential creative ways that involve active interaction of children with their environment. This approach not only provides an alternative to the use of books or digital media, but also encourages children to find literacy in contexts relevant to their daily lives, creating more meaningful and enjoyable learning.

In practical terms, the implications of this study show that early childhood education teachers can utilize non-conventional spaces to support relevant, fun, and contextual literacy learning. This approach not only broadens the theoretical horizons of early childhood education but also provides practical alternatives to overcome resource limitations in areas such as Sikka, NTT. Thus, this research makes a new contribution in integrating educational innovations and theories to improve the quality of early childhood literacy in culturally relevant environments.

Research on the concept of Literacy Toilets still has gaps to learn more. Several things that will be studied in the future related to the use of non-formal spaces as a means of realizing the literacy movement have goals, including increasing reading interest(Zhao et al., 2024); the effectiveness of non-formal spaces for learning(Pek et al., 2024); literacy skills and general insights(W. Astuti et al., 2024); as well as creativity and message design. Overall, the concept of Literacy Toilet is still relatively new as a formal education concept and has great potential for further research in the context of literacy and alternative education.

The concept of toilet literacy as a Discovery Learning-based learning medium for early childhood has several differences and similarities with other educational approaches that emphasize exploration-based and environment-based learning. One approach that can be compared is learning based on educational ecology. The educational ecology approach utilizes the natural environment, such as a playground or garden, as a learning space to introduce the concepts of literacy and numeracy contextually (Labobar & Kapojos, 2023). While toilet literacy uses non-conventional spaces such as toilets as a medium to introduce early literacy, this approach underscores the importance of utilizing the daily space available in the child's environment, especially in areas with limited learning facilities (Aswita et al., 2022).

However, the main similarity of the concept of toilet literacy with other environment-based approaches is that they both encourage contextual learning that is relevant to children's lives. This approach emphasizes that literacy not only develops in the classroom, but can also be acquired through children's interaction with the surrounding environment. Toilet literacy provides an innovative alternative that is not only practical but also easy to implement in areas with limited resources, such as in Sikka, NTT.

DOI: 10.31004/obsesi.v9i1.6727

Conclusion

Based on the results of the presentation in this study, the following can be concluded. *First,* an attractive classroom design is an absolute thing in the process of implementing learning activities in every school. An attractive learning space can spark students' interest, enthusiasm, learning style, and cognitive ability. *Second,* the Literacy Movement, which was initiated through non-formal spaces in schools such as toilets, actually builds a new learning awareness, that learning can happen anywhere, anytime, and with any media. *Third,* designing an attractive learning room can stimulate students' exploratory spirit, increase students' learning activity, encourage the search for knowledge and ideas through image and letter design, and encourage the realization of students' reading culture in the future. Several things can be recommended from this research, namely encouraging the improvement of teacher qualifications and innovative spirit in the application of interesting and fun learning activities for students; Managers of early childhood education institutions can develop learning spaces that are practical, ergonomic, and accommodate the needs of students; and become a policy reference for stakeholders in the framework of implementing adaptive early childhood education and in accordance with the learning needs of students. For further study, the results of this study can be a reference to collaborate on various learning approaches and contextualize teaching materials for the learning needs of students in the future.

Acknowledgement

The researcher expressed his gratitude to the Directorate of Research, Technology and Community Service (DRTPM) of the Ministry of Higher Education, Science, and Technology of the Republic of Indonesia for its financial support from the preparation of the research design, implementation, to the publication of the results of this research. The research team also expressed its gratitude to the Institute for Research and Community Service (LPPM) of Nusa Nipa University for facilitating the team from activity planning to reporting and publication of the results of this research.

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